

REMARKS

Introduction

In response to the Office Action dated August 6, 2008, Applicants have amended claims 1 and 4-7. The limitations of claim 3, previously dependent upon claim 1, have been incorporated into claim 1, and claim 3 cancelled. Claims 4-7 have been amended to depend directly from claim 1. Care has been taken to avoid the introduction of new matter. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that all pending claims are in condition for allowance.

Claim Objections

Claim 1 is objected for informalities, specifically to the punctuation. Claims 4-7 are objected to under 37 C.F.R. § 1.75(c) as being improper form because a multiple dependent claim should not depend from another multiple dependent claim.

Claims 1 and 4-7 have been amended to address the issues identified by the Examiner.

Withdrawal of the foregoing objections is respectfully requested.

Claim Rejections Under 35 U.S.C. § 102

Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2002302516 to Taguchi ("Taguchi"). Applicants traverse.

Claim 1 has been amended to incorporate dependent claim 3. Accordingly, the rejection is moot and withdrawal of the rejection under 35 U.S.C. § 102 is solicited.

Claims 1 and 2 are rejected under 35 U.S.C. § 102(a) as being anticipated by JP 2004-018787 to Watanabe et al. ("Watanabe").

Claim 1 has been amended to incorporate dependent claim 3. Accordingly, the rejection is moot and withdrawal of the rejection under 35 U.S.C. § 102 is solicited.

Claims 1 and 2 are rejected under 35 U.S.C. § 102(a) as being anticipated by JP 2004185967 to Kita et al. (“Kita”).

Claim 1 has been amended to incorporate dependent claim 3. Accordingly, the rejection is moot and withdrawal of the rejection under 35 U.S.C. § 102 is solicited.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that “inherency may not be established by probabilities or possibilities,” *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int’l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Kita does not anticipate amended claim 1 nor any claim dependent thereon. The dependent claims are allowable for at least the same reasons as claim 1.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe. Applicants traverse.

The Examiner contends that Watanabe shows, in structure M-9, a monomer that corresponds to the copolymer of claim 1. The Examiner opines that Watanabe further discloses that the first monomer may form a copolymer with a second monomer unit. The Office Action acknowledges that Watanabe is *silent* regarding the use of a further oxadiazole monomer in the copolymer material. The Examiner concludes that given the teaching of the use of more than two monomer units in the copolymer **and** the teaching of an oxadiazole monomer as a preferred

co-monomer, it would have been obvious to one of ordinary skill in the art to use the oxadiazole monomer (*see*, Formula 18 in Para. [0054]) as a preferred co-monomer for the purpose of increasing the electron transporting capability of the polymer material.

Watanabe describes copolymers consisting of a carbazole group-containing monomer represented by general formula (1) and other units including a monomer, such as, amino group-containing monomers or an oxadiazole group-containing monomer. Watanabe does not disclose or suggest the same material for organic electroluminescent elements including a copolymer having ***three different monomer units*** where one of the monomer units has an unconjugated trivalent organic residue, an oxadiazole unit, and a compound having a direct bond between the unconjugated trivalent organic residue and the oxadiazole unit, as required by amended claim 1.

Contrary to the Examiner's assertions, Watanabe does not recognize the advantage of a material for organic electroluminescent elements including a copolymer having ***three different monomer units*** where one of the monomer units has an unconjugated trivalent organic residue, an oxadiazole unit, and a compound having a direct bond between the unconjugated trivalent organic residue and the oxadiazole unit, as required by amended claim 1. As taught in the instant specification, the organic electroluminescent element is superior in light-emitting properties and hole transporting and electron transporting efficiency (*see, e.g.*, Table 2 and pp. 55 – 56 of the originally filed specification). However, Watanabe does not disclose or suggest this, and apparently is unaware of the unexpected improvement in brightness and luminous efficiency provided by the claimed organic electroluminescent elements.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kita.

Claim 3 has been cancelled in this Amendment. However, amended claim 1, introduced in this amendment, include the limitations of claim 3.

The Examiner contends that Kita discloses a copolymer having three monomers including a luminescent host, a hole transporter, and an electron transporter, such as, carbazole derivatives, triarylaminers, and oxadiazole monomers, respectively. The Examiner concludes that it would have been obvious to synthesize the claimed copolymer because the Examiner predicts that the material would function as a host for phosphorescent dopants.

Kita describes copolymers comprising at least 2 monomers selected from a monomer with the function of a luminescent host, a monomer with the hole transporting function, and a monomer with the electron transporting function. In Kita, a copolymer consisting of a carbazole group-containing monomer and an oxadiazole group-containing monomer is described as multi-function polymer 2-5. Kita does not disclose or suggest the same material for organic electroluminescent elements including a copolymer having three different monomer units where one of the monomer units has an unconjugated trivalent organic residue, an oxadiazole unit, and a compound having a direct bond between the unconjugated trivalent organic residue and the oxadiazole unit, as required by amended claim 1. As taught in the instant specification, the organic electroluminescent element is superior in light-emitting properties and hole transporting and electron transporting efficiency (*see, e.g.*, Table 2 and pp. 55 – 56 of the originally filed specification). However, Kita does not disclose or suggest this, and apparently is unaware of the unexpected improvement in brightness and luminous efficiency provided by the claimed organic electroluminescent elements.

Claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2002124390 to Sakakibara (“Sakakibara 1”).

Claim 1 has been amended to incorporate dependent claim 3. Accordingly, the rejection is moot and withdrawal of the rejection under 35 U.S.C. § 103 is solicited.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakakibara 1 as applied to claims 1 and 2 above, and further in view of U.S. Patent No. 6,872,474 to Sakakibara et al. (“Sakakibara 2”).

Claim 3 has been cancelled in this Amendment. However, amended claim 1, introduced in this amendment, include the limitations of claim 3.

The Office Action acknowledges that Sakakibara 1 is *silent* regarding an oxadiazole containing monomer in the copolymer material. The Examiner contends that Sakakibara 2 describes polymerizable compounds, such as, aromatic tertiary amine compounds having a triphenylamine skeletal structure or carbazole skeletal structure. The Examiner predicts that the additional aromatic ring between the carbazole and the polymer backbone would not alter the hole transporting function of the carbazole material. The Examiner concludes that it is well known in the art to include electron transporting monomers into copolymers to increase the electron transport ability of the polymer materials and further opines to use as a host material for phosphorescent dopants.

JP 2002-124390 (Sakakibara 1) describes copolymers comprising an amino group-containing monomer and a carbazole group-containing monomer. However, there is no description of copolymers ***further comprising*** an oxadiazole group-containing monomer. Sakakibara 1 is *silent* regarding the teaching of an oxadiazole monomer as a preferred co-monomer.

Sakakibara 2 describes copolymers comprising structural units derived from the hole transporting monomer and structural units derived from the electron transporting units. In addition, there are exemplified carbazole group-containing monomers such as N-vinyl carbazole as the hole transporting monomer and oxadiazole derivatives as the electron transporting units.

However, Sakakibara 2 is *silent* regarding the use of amino group-containing monomers and advantageous effects obtained by use of the copolymer consisting of the three different monomers.

Further, Sakakibara 2 does not teach the use of an oxadiazole group-containing unit as monomer units in the copolymer of Sakakibara 1.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). There is no suggestion in Sakakibara 1 to modify the copolymer to include an additional monomer that is an oxadiazole group-containing monomer, nor does common sense dictate the Examiner-asserted modifications. The Examiner has not provided any evidence that there would be any obvious benefit in making the asserted modification of Sakakibara 1. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).

The only teaching of the material for organic electroluminescent elements including a copolymer having ***three different monomer units*** where one of the monomer units has an unconjugated trivalent organic residue, an oxadiazole unit, and a compound having a direct bond between the unconjugated trivalent organic residue and the oxadiazole unit is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As taught in the instant specification, the organic electroluminescent element is superior in light-emitting properties and hole transporting and electron transporting efficiency (*see, e.g.*, Table 2 and pp. 55 – 56 of the originally filed specification). However, neither Sakakibara 1 nor Sakakibara 2 discloses or suggests this, and apparently are unaware of the unexpected improvement in brightness and luminous efficiency provided by the claimed organic electroluminescent elements.

Withdrawal of the foregoing rejections is respectfully requested.

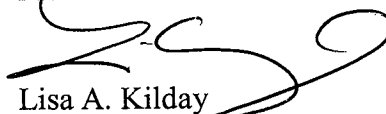
Conclusion

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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